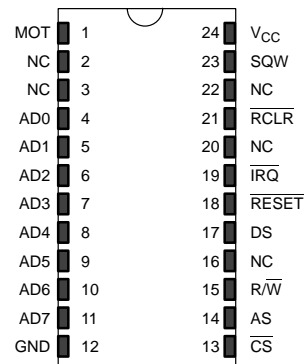# DALLAS
SEMICONDUCTOR

DS1287A
Real Time Clock

FEATURES

- Drop-in replacement for IBM AT computer clock/calendar

- Pin compatible with the MC146818A

- Totally nonvolatile with over 10 years of operation in the absence of power

- Self-contained subsystem includes lithium, quartz, and support circuitry

- Counts seconds, minutes, hours, day of the week, date, month, and year with leap year compensation

- Binary or BCD representation of time, calendar, and alarm

- 12- or 24-hour clock with AM and PM in 12-hour mode

- Daylight Savings Time option

- Selectable between Motorola and Intel bus timing

- Multiplex bus for pin efficiency

- Interfaced with software as 64 RAM locations
  - 14 bytes of clock and control registers
  - 50 bytes of general purpose RAM

- Programmable square wave output signal

- Bus-compatible interrupt signals ($\overline{\text{IRQ}}$)

- Three interrupts are separately software-maskable and testable
  - Time-of-day alarm once/second to once/day
  - Periodic rates from 122 μs to 500 ms
  - End of clock update cycle

PIN ASSIGNMENT

MOT	1		24	V_{CC}
NC	2		23	SQW
NC	3		22	NC
AD0	4		21	$\overline{\text{RCLR}}$
AD1	5		20	NC
AD2	6		19	$\overline{\text{IRQ}}$
AD3	7		18	$\overline{\text{RESET}}$
AD4	8		17	DS
AD5	9		16	NC
AD6	10		15	R/$\overline{\text{W}}$
AD7	11		14	AS
GND	12		13	$\overline{\text{CS}}$

24 PIN ENCAPSULATED PACKAGE

PIN DESCRIPTION

AD0–AD7	-	Multiplexed address/data bus
NC	-	No connection
MOT	-	Bus type selection
$\overline{\text{CS}}$	-	Chip select
AS	-	Address strobe
R/$\overline{\text{W}}$	-	Read/write input
DS	-	Data strobe
$\overline{\text{RESET}}$	-	Reset input
$\overline{\text{IRQ}}$	-	Interrupt request output (open drain)
SQW	-	Square wave output
V_{CC}	-	+5 volt supply
GND	-	Ground
$\overline{\text{RCLR}}$	-	RAM clear

DESCRIPTION

The DS1287A is identical to the DS1287 with the addition of the RAM clear pin. For a complete description of operating conditions, electrical and mechanical characteristics, bus timing, and pin descriptions see the DS12887A data sheet.